IN THE CLAIMS

Complete listing of the claims:

1. (Currently amended) A liquid jetting apparatus to jet a droplet of a charged liquid solution onto a base material, comprising:

a liquid jetting head comprising a nozzle to jet the droplet from an edge portion, an inside diameter of the edge portion of the nozzle being more than 0.2 μm and being not more than 4 μm, the nozzle being integrally formed with a nozzle plate;

a liquid solution supplying section to supply the liquid solution into the nozzle;

a jetting voltage applying section to apply a jetting voltage to the liquid solution in the nozzle, the jetting voltage applying section comprising a jetting electrode provided as a layer on a back end surface of the nozzle plate, the jetting electrode having an ink passage hole positioned at a border between the liquid solution supplying section and the inside passage; and

a convex meniscus forming section to form a state where the liquid solution in the nozzle protrudes from the nozzle edge portion;

wherein the jetting voltage is set to a value in the range that a droplet is capable of being jetted in a state where a convex meniscus by the liquid solution is formed at the edge portion of the nozzle, and a droplet is not jetted in a state where the convex meniscus is not formed.

2. (Original) The liquid jetting apparatus of claim 1, further comprising an operation control section to control an application of a driving voltage for driving the convex meniscus forming section and an application of the jetting voltage by the jetting voltage applying section,

wherein the operation control section comprises a first jetting control unit to control the application of the driving voltage of the convex meniscus forming section when jetting a droplet while controlling the application of the jetting voltage by the jetting voltage applying section.

3. (Previously Presented) The liquid jetting apparatus of claim 2, wherein the operation

control section comprises a liquid stabilization control section to perform an operation control to draw a liquid level at the nozzle edge portion to an inside after the protruding operation of the liquid solution and the application of the jetting voltage.

4. (Withdrawn) The liquid jetting apparatus of claim 1, further comprising an operation control section to control a driving of the convex meniscus forming section and a voltage application by the jetting voltage applying section,

wherein the operation control section comprises a second jetting control unit to perform a protruding operation of the liquid solution by the convex meniscus forming section and an application of the jetting voltage in synchronization with each other.

5. (Withdrawn) The liquid jetting apparatus of claim 4, wherein the operation control section comprises a liquid stabilization control section to perform an operation control to draw a liquid level at the nozzle edge portion to an inside after the protruding operation of the liquid solution and the application of the jetting voltage.

6. (Previously Presented) The liquid jetting apparatus of claim 1, wherein the convex meniscus forming section comprises a piezo element to change a capacity in the nozzle.

7. (Withdrawn) The liquid jetting apparatus of claim 1, wherein the convex meniscus forming section comprises a heater to generate an air bubble in the liquid solution in the nozzle.

8. (Previously Presented) The liquid jetting apparatus of claim 1, wherein a jetting voltage V by the jetting voltage applying section satisfies the following equation (1);

$$h\sqrt{\frac{\gamma\pi}{\varepsilon_0 d}} > V > \sqrt{\frac{\gamma k d}{2\varepsilon_0}} \qquad (1)$$

where, γ: surface tension of liquid solution [N/m], ϵ_0: electric constant [F/m], d:

nozzle diameter [m], h: distance between nozzle and base material [m], k: proportionality constant dependent on nozzle shape ($1.5<k<8.5$).

9. (Previously presented) The liquid jetting apparatus of claim 1, wherein the nozzle is formed with a material having an insulating property which indicates dielectric breakdown strength of not less than 10 kV/mm.

10. (Previously presented) The liquid jetting apparatus of claim 1, wherein at least the edge portion of the nozzle is formed with a material having an insulating property which indicates dielectric breakdown strength of not less than 10 kV/mm.

11-14. (Canceled)

15. (New) The liquid jetting apparatus of claim 1, wherein the liquid solution supplying section comprises a liquid solution room, and the ink passage hole is at a border position between the liquid solution room and the inside passage of the nozzle.

16. (New) The liquid jetting apparatus of claim 1, wherein the inside diameter of the nozzle at the nozzle edge portion and an inside diameter of the inside passage of the nozzle are uniform.